(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization
International Bureau

(43) International Publication Date
31 July 2003 (31.07.2003)

PCT

(10) International Publication Number
WO 03/062863 A2

(51) International Patent Classification[7]: G02B

(21) International Application Number: PCT/IL03/00055

(22) International Filing Date: 22 January 2003 (22.01.2003)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
60/349,342 22 January 2002 (22.01.2002) US

(71) Applicant *(for all designated States except US)*: COLOR-CHIP (ISRAEL) LTD. [IL/IL]; P.O. Box 11058, 30600 Or Akiva (IL).

(72) Inventors; and
(75) Inventors/Applicants *(for US only)*: LIPOVSKII, Andrey [IL/IL]; P.O. Box 11058, 30600 Or Akiva (IL). TAGANTSEV, Dmitry, K. [IL/IL]; P.O. Box 11058, 30600 Or Akiva (IL).

(74) Agent: FRIEDMAN, Mark, M.; Beit Samueloff, Haomanim St. 7, 67897 Tel Aviv (IL).

(81) Designated States *(national)*: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DB, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KB, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

(84) Designated States *(regional)*: ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, SE, SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Published:
— *without international search report and to be republished upon receipt of that report*

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

WO 03/062863 A2

(54) Title: POTASSIUM FREE ZINC SILICATE GLASSES FOR ION-EXCHANGE PROCESSES

(57) Abstract: A fluorinated zinc-silicate glass having a composition, expressed in molar percent, of essentially from about 49 to about 69 % SiO_2, from about 2 % to about 30 % ZnO, from about 3.9 to about 18 % Al_2O_3, from about 10 % to about 16.7 % Na_2O, from about 0 % to about 13 % B_2O_3, from about 0 % to about 0.8 % MgO, from about 0 % to about 0.7 % BaO, from about 0 % to about 3 % $Zr0_2$, from about 0 % to about 6.7 % CaO, from about 0 % to about 0.11 % As_2O_3, from about 0 % to about 0.07 % Sb_2O_3, from about 0 % to about 3 % NaF and from about 0 % to about 3.9 % AlF_3. The glass can be prepared in optical quality slabs, is chemically durable in water, $NaNO_3$ salt melts and boiling NaOH, and has a refractive index close to that of the optical fiber to reduce coupling losses. The glass includes Na as a single alkali ion species exchangeable for silver in an ion-exchange process that provides a sufficient index change for waveguiding.